Wi-Ex presentation to the FCC

October 13th, 2010

Non-Interfering Boosters are a Reality

Background

- Wi-Ex founded in 2002 near Atlanta, GA
- Product sales began in January, 2005
- Large number of units sold in U.S.
- Primary criteria for product development:
  - Help average people use outside signal
  - Protect the integrity of the carrier network
  - Consumer affordable

Why Boosters? [scope of need]

- **Millions** cannot receive the signal they pay for
  - Coverage is poor in many urban and rural areas
  - Physics limits penetration of signal into buildings
  - No one solution for everyone [e.g. femtocell]
  - Harris Interactive conducted 4 surveys of almost 10,000 U.S. adults over three consecutive years. Nearly 70% had to do something special to use their cell phone dependably at home or in the office.
- Boosters meet a consumer need

Non-interfering Boosters

- Non-interfering boosters are a reality
  - No known cases of interference from zBoost products
- Broadband is necessary
- The Network problem is self-oscillation
- Lab Testing through existing FCC Equipment Certification is practical and reasonable

How Far Does 70dB Propagate?

- Assume Conservative p.f. 2.5-3.0
- For PCS (1900MHz), only 30-15
- FEET !
- For CEL (850MHz), 2x, or 60-30 Feet
- Add NF=6dB, 2x, or 120-60 Feet
- For ~10 BDAs/sector, 2x, or 240-120 Feet

- For **85dB** BDA, 4X, or 960-480 Feet

zBoost Network Protection

- Assume consumer does not read manual
- Constant monitoring of both UL & DL
- UL gain limited by DL power level (protects "near" BTS from noise rise)
- Gain margin – above installed isolation
- Dynamic output power limiting
- System shutdown for uncorrectable conditions
- Simple visual indicators for troubleshooting
- **No known cases** of interference

Lab Testing Standards

- Is additional testing necessary?
- Oscillation: Wilson Proposal: generally agree
  - PASS is a Power x time Factor: **1mW·sec**
  - Add test to power-on the device during low isolation
  - Add a Broadband Test without filters
- Gain Balance Test (Wilson): unnecessary
- Noise Rise Peak [UL]: < N. Floor + Gain + 10dB
- Reinforce current IMD at power limit test